

Date: September 11th

Lesson Title: Going Somewhere?

Objective:

To understand the idea of recursion through algebraic expressions.

In:

Evaluate each of the expressions letting $\square = 5$.

$$4(\square) + 8 =$$

$$-2 * \square - 6 =$$

$$10 \div \square - 24 =$$

Do you play
miniature golf?



In Futurama, Leo Wong likes to play miniature golf!

He was so close to hitting the ball into the hole his first shot, but not quite!

He pushes it...almost...



Finally the ball got so close, it just fell into the hole.

Some number processes also get closer and closer to a final target, until the result is so close that the number rounds off to the target value or answer.

You will be exploring this process while reviewing operations with integers.



0.1 Investigation • A Strange Attraction

$$-2 \cdot \square + 3$$

Original expression:		
Starting number (at Stage 0):		
Stage number	Input	Result
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Step 3

Put your starting number in the box, and do the computation. This process is called **evaluating the expression**, and the result is the **value of the expression**. Be sure to follow the order of operations.

Step 4

Take the result you got from Step 3, put it in the box in your expression, and evaluate your expression again. Place your new answer in the table as your second result.

Step 5

Continue this recursive process using your result from the previous stage.

Evaluate your expression.

Each time, record the new result in your table.

Do this ten times.

0.1 Investigation • A Strange Attraction

Step 1

Each member of the group takes one of these 4 expressions:

$$2 \cdot \square + 1$$

$$3 \cdot \square - 4$$

$$-2 \cdot \square + 3$$

$$-3 \cdot \square - 1$$

Step 2

As a group, choose a starting number.

Each person needs to record their own expression

and the group's starting number in a table like the one shown.

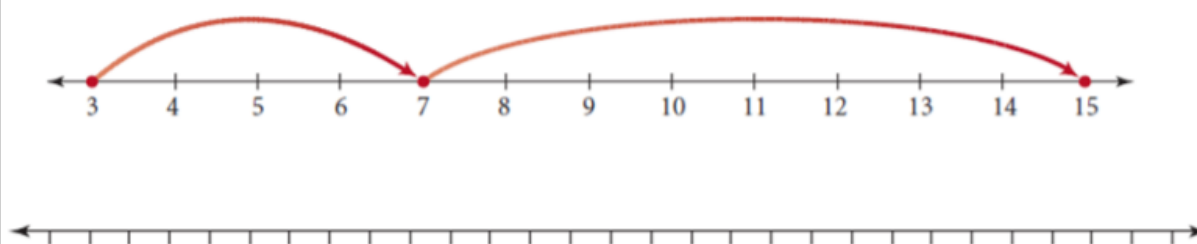
Original expression:		
Starting number (at Stage 0):		
Stage number	Input	Result
1		
2		DO NOT FILL IN THE CHART YET!
3		
4		
5		
6		
7		
8		
9		
10		

Step 6

Use the blank number line and scale it so that you can show the first five results from your table.

Plot the first result from your table, and draw an arrow to the next result to show how the value of the expression changes.

For example,



Step 7 How do the results in your group compare?

Step 8 Repeat Steps 1 to 6 with one of the expressions below.

$$0.5 \cdot \square - 3 \quad 0.2 \cdot \square + 1$$

$$-0.5 \cdot \square + 3 \quad -0.2 \cdot \square - 2$$



Step 9

How do the results in your group compare?
Do the results of these expressions differ from
the results of your first expression?

Summary

Today I learned how to...

OR

I still need help on...

OUT

Simplify $(-3 \cdot 4) - (-4 \cdot 2)$

Homework
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and #5